

Test H213 for partial segregation; heredity of lac.

Courie, D.B.; Roberts, R.B.; Roberts J.Z. (1949). JCCP 34: 243 - 257. potassium metabolism in *Escherichia coli*. I. Permeability to sodium and potassium ions.

Na^+ reaches equilibrium rapidly between water space of cells and environment. K^+ concentrated : 2-5 mg/ml K bound inulant; also diffusible K in equilibrium. "After initial equilibrium there is a further slow uptake of K^+ over 2 hours resting cells suspended in a medium with no energy source. This appears to be due to the residual metabolism of the cells."

When glucose is added, K is taken up at a minimum rate of 1 mg K/min/cell . Bound K (low K medium for growth) is not readily lost. Free K is lost after washing. In metabolism, cells exchange K rapidly (5%/min.) but membrane must be highly permeable.

2.3 ± 0.3 atoms K taken up per mole glucose.

Butyrate inhibited K-exchange but not P-loss. DNP prevented K turnover. Aride inhibited P uptake. Excess PO_4 partially. Attempts to isolate K compounds failed. K was released by suspending cells
a) in NaCl pH 9 2) Et_2O ; water 3) freezing + thawing, 4) ext. 50% $\text{Et}_2\text{O/H}_2\text{O}$. Imply that K-compounds are extremely unstable + destroyed when extracted. Uptake with G-1-P accelerated.

See Leibovitz & Kepesiny.

Potassium metabolism in *Escherichia coli*. II Metabolism in the presence of carbohydrates & their metabolic derivatives. JCP 34: 259 - 291.
Roberts, Cobell, I. S., + co. a

It behaved like K and could be used as a tracer.

K-uptake unaffected by uv or benzimidazoles.

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on the nature of adaptive enzymes

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The fermentation of mucic acid by some intestinal bacteria.

+ : aerobacter, coli, para B, typhus, enteritidis

- : typhi, paratyphi, cholera suis, dysenteriae.

Knappmiller, H.P. + A.J. Selle, J. Gen. Physiol. 24: 377-397 (1941)

Studies on the lactase of E. coli.

Hessing + Braufahrmeier.

① China-Blue - Rosolic Acid Indicator medium.

Toluene supposedly inhibits oxidation but not hydrolysis. after Racine.

No activity in autolysates.

Deere et al. 1936. — Lactose is not removed from broth by Lac-.

Measured lactase by increase in total reducing power caused by
toluene or thymol-treated cells. Thymol study is 1 hour.

Substrate: .5% lactose in 1% acacia + .1M Phosphate at 7.0-7.2.

Samples dried by vacuum desiccation. Dried cells (20.50 mg.), suspended in
25 cc 2% acacia, 10-20 mg thymol & incubated. After 1 hr., 25 cc 1% Lac
added. Dil. in .01% CuSO₄ to stop enzyme action.

Activities: small activity noted in unadapted cells! .1-.2% hydro/mg.
_{cells}

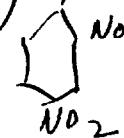
This increased to about 4.5%

No specific statements on no-cell controls in lactose-acacia system.

Acacia might be hydrolyzed! 12 hour incubation period. No statement
on contamination! [10mg thymol / 50cc.] Dried + Non Dried cells had
similar activity.

Porter, R.R. (1948) Acta Biol. Acad. Sci. Hung. 2(2):105-112. The unreactive amino groups of proteins.

Only ¹⁹ of the 32 ϵNH_2 (lysine) of *Blastoglobulin* react with



(FDNB) unless denatured. All can be acetylated.

W 327.

~~Mel~~ $S_M + T + B_T - x$

$$M_1 + M_3 - S_M + T - L - B_1 - \times S_{\gamma} - M_1 - B - M - H.$$

$S_M - M_1 - M_3 +$	$B_M T_L B_1 \dots$			
$S_M + M_1 + M_3 -$	- - - -			
S_M	M_1	M_3	Glu	Mal
-	-	+	+	-
-	-	-	-	-
+	-	+	+	?
+	-	-	-	?
+	+	-	-	+
+	+	+	+	+
-	+	-	-	-
-	+	+	+	+

If suppressor affects M_1 -

$S_M + H_1 - H_3 +$ and $S_M + H_1 - H_3 -$ have to be identified from $++$ and $-++$ (wild types). Need progeny tests of $H_1 + H_3 +$

- (1) Measure "K_m" of adaptation and compare it K_m for the enzyme.
- (2) Determine u.v. absorption spectrum of cat + hamster (the nonadapted) by spectrophotometric evidence of complex formation. Do. enzyme + OMPG in presence of inhibitor - Mg²⁺·PO₄³⁻

$s_M \rightarrow Mal^-$ in $s_H + M_1 - H_1 +$.

$s_{M \pm} M_1$

Wild types vs. $s_M + M_1 - M_3 +$. Cross $\xrightarrow{s_H + Mal^+}$ $\xleftarrow{-}$ cross segregants, \bar{c}

wild type and look for Mal^- recombinants.

If $s_M \rightarrow Mal^-$ in $s_M + M_1 - M_3 - [s_H - Mal^+]$, must be distinguished from $s_{M \pm} M_1 + M_3 -$. Take $M_3 +$ papillae and cross \bar{c} wild type....

$s_H - Mal^+$ is index of $s_M + M_3 -$.

Cross W108-Mal⁺-s_H- : $s_H + Mal_3 + Mal_1 + \times s_H - Mal_3 + Mal_1 -$

and look for Mal segregation. If $s_H -$, $Mal_3 +$ true.

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Pubblicazioni della Stazione Zoologica di Napoli vol 22 suppl. 1950 , June

Relazioni tenute al convegno su GLI AGENTI MUTAGENI 27-31 maggio 1949

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6. R. Latarjet (Paris): Induction d'une mutation spécifique chez une bactérie par des
65-78-93 cancérogènes hydrosolubles. *P Bau-Hol *CA Flas
4. **B. Ephrussi (Paris): Induction par l'acriflavine d'une mutation spécifique chez la
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7. N. Visconti (milani): Le mecanisme d'action letale de la moutarde azotée sur
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8. M. Vegt (Neustadt im Schwarzwald): Urethane-induced mutations in Drosophila
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9. E. Battaglia (Pisa): Nuove sostanze inducenti frammentazione cromosomica
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11. A.Buzzati-Traverso (Pavia): Perspectives of research on mutagens (A discussion
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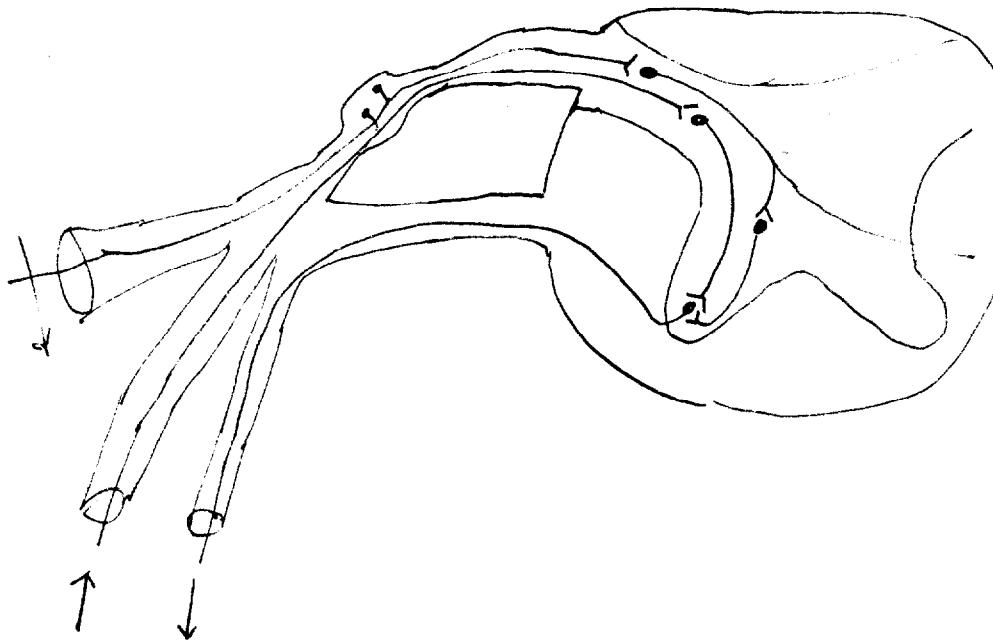
Porter and Taylor

J. Neurophys. 8 (1945)

Intramedullary disturbances & pain.

Post-tibial nerve stirr., massive fib. art. response Spinal cat.

Stirr. n. at each respiration. (artificial). Pain produced by acid in other nerve fields. Response increased. No response to conc. reflex stimuli.



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substrates. III. p-nitrophenyl sulfate as a
substrate for the activity of phenolsulfatase activity.
JBC 170: 391-398.

$\text{O}_2\text{N}(\text{CH}_3)_2$ (DMA) 47 ml + CS_2 50 ml are
mixed in a 500 ml suction flask ~~on~~ in ice
bath in hood. Add 9 ml ClSO_3H dropwise.
Add 13.9 g p-nitrophenol rapidly. Stir one hour
& let stand overnight.

Add 100 ml .4 M KOH \rightarrow yellow crystals.
Stir thoroly. Evaporate CS_2 at 80° in vacuo.
Recrystallize crude product 3-4 x in 80% EtOH.
[Method from J. Ch. S. 1:684 (1926).]

Found activity measurable in 10 hours.
opt. act pH 6.12 in acetate N/2.
 $K_m = 7 \times 10^{-5} \text{M}$. from taloseidase.

Dept Surgery, U Chicago.